



# New horizons for string inverters

TLX Pro 8k • TLX Pro 10k • TLX Pro 12.5k • TLX Pro 15k

## 2 in 1

**Inverter and web server in one unit**

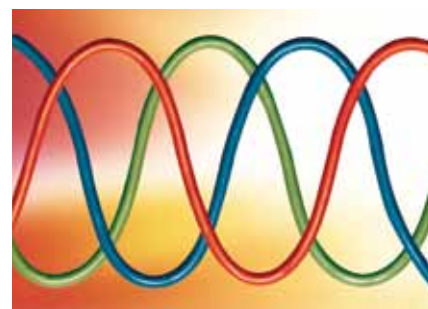
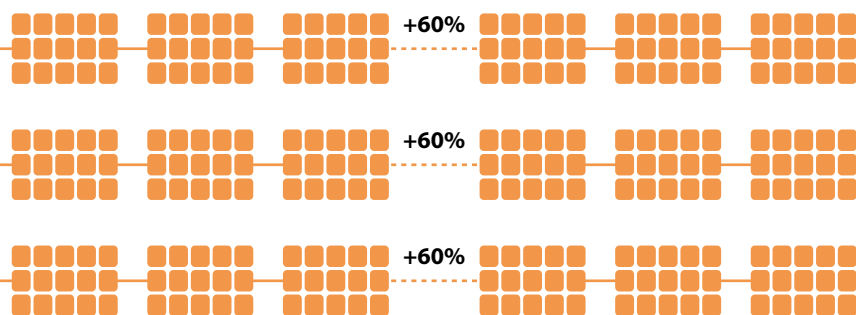
This means less cabling and a high-speed Ethernet connection, while “master” functionality ensures easy data management.



# New thinking from TripleLynx Pro

TripleLynx Pro represents a new frontier in string inverter technology. Based on our TripleLynx platform, the Pro range takes PV system management and easy installation to a new level. The result is a string inverter that offers unparalleled engineering simplicity, system flexibility and performance in efficiency.





### Engineering simplicity

Danfoss is known worldwide for bringing functional simplicity to complex engineering technologies. Our approach to solar inverters is no different. Among the high-lights of the Pro series is the **Master Inverter** function. This allows you to manage up to 100 inverters from a single designated “master” inverter, saving time and reducing errors. And in terms of monitoring, each TLX Pro inverter comes with an **integrated web server** as standard. These breakthrough features (described in detail on pages 4-7) once again put TripleLynx at the forefront of string inverter innovation.

The TripleLynx Pro is based on our proven and innovative TripleLynx series platform. The entire TLX series features a remarkably intuitive user interface, encouraging fast, trouble-free installation. Intelligent functionality allows the inverter to constantly adapt to its surroundings, maximising yield and grid compliance at all times. In addition, three-phase output is assured, even if one string input falls out.

### System flexibility

Despite its simple, user-friendly design, TripleLynx Pro is extremely flexible when it comes to configuration options. For one thing, TripleLynx Pro allows for a 1000 V<sub>OC</sub> input, enabling you to deploy 60% more modules in series than an average string inverter.

What’s more, for added versatility, multiple DC inputs let you configure each string separately, so each string is optimised to reflect changing conditions.

### Performance in efficiency

#### Tracking efficiency

TripleLynx Pro is able to deliver 99.9% MPP tracking efficiency in static conditions and 99.8% under dynamic conditions.

Since each inverter has three separate inputs, each linked to a separate MPP tracker, TripleLynx Pro is able to constantly adjust and maximise yield according to environmental conditions. Add to that a large MPP window (250-800 V<sub>OC</sub>) and the inverter is extremely well equipped to constantly harvest and deliver as much energy as possible at any time.

#### Operating efficiency

TripleLynx Pro’s transformer-less design, intelligent component layout and low consumption all combine to give a peak operating efficiency of 98% (and a weighted EU efficiency of ≥97%).

#### Grid connected

Utility compliance is supported by the inverter’s three-phase design, which ensures balanced, harmonic output at all times. This is further reinforced by the inverter’s excellent ride through and de-rating capabilities. The result is an inverter that offers maximum returns throughout the day.

### HIGHLIGHTS

- **Integrated web server**
- **Master inverter functionality**
- **99.9% MPP tracking efficiency**
- **98% peak efficiency**
- **1000 V<sub>OC</sub> input**
- **3-phase output**
- **Multiple DC inputs**
- **Ethernet connection**

*A 1000 V<sub>OC</sub> input allows 60% more modules per string, while delivering 98% efficiency. Three-phase output supports grid connectivity.*



# Built-in monitoring

**TripleLynx Pro takes system surveillance to another level, integrating all monitoring and data collection in one system for the first time. Among the highlights for system management is a built-in web server. This gives you access to all key data – anytime, anywhere.**







*Log into the web server from an Internet-enabled computer and remotely manage your entire PV plant.*

5

### Easy installation

By logging onto the web server, it is possible to connect to TripleLynx Pro and begin managing the inverter from wherever you are. By remotely accessing the Master Inverter, you can view settings, make adjustments and analyse log information, all from the comfort of your own PC. With user-friendliness in mind, the web server is totally integrated into all TripleLynx Pro inverters, eliminating the need for external hardware. From a web browser, simply logon to the Master Inverter using the product serial number. Once in it is possible to scan the network and access all other inverters from there.

### System monitoring

The web server interface allows users to view all key PV system data on one screen. Everything from production and revenue figures to CO<sub>2</sub> savings is available. It's also possible to drill down and access data for each individual inverter string. For larger plants, you can divide the system into different groups.

Data can be displayed in a variety of graphical forms for an instant visual insight into plant performance and can be used for comparisons.

It is possible to receive automated alerts by email or text message, should performance vary from user-defined levels.

### Data logging

TripleLynx Pro logs detailed system data at set user-defined intervals and can store summarized data for 20 years. Moreover, if set to log data every 10 minutes, the inverter can store detailed information for up to 34 days. Or data can be uploaded to an external web portal.

All inverter settings and log information are additionally backed up within the inverter's control interface. Should an individual inverter be replaced, it is possible to transfer all the old inverter's settings and log information by simply plugging the control interface into the new inverter.

### Plug-and-play Ethernet connection

For high-speed data exchange, TripleLynx Pro includes Ethernet ports for full integration into a proprietary network. Just plug in a standard network cable and connect to a computer. All addresses are set automatically. It's possible to arrange inverters in either a daisy chain or star network, or even a combination of the two, letting you rapidly transfer data between up to 100 inverters.

### MONITORING HIGHLIGHTS

- Integrated web server
- Integrated data logger
- High-speed Ethernet connection
- Automated alerts
- User interface back-up



*View all key plant statistics on one screen or dig right down to see individual inverter performance.*

# Streamlined control with Master Inverter

**With the new Master Inverter functionality, TripleLynx Pro once again raises the bar for efficient string inverter control. Combined with the TripleLynx Pro's integrated communication options, the Master Inverter provides a unique facility to access and manage your PV system around the clock.**





*Access the Master Inverter via an integrated web server and control up to 100 inverters at the same time.*

7

### Unparalleled installation efficiency

By assigning one TripleLynx Pro inverter as a "Master Inverter", it is possible to manage up to 100 other inverters from one single web interface. This hugely streamlines the installation and commissioning process, particularly for large PV plants. You simply configure the Master Inverter as needed and it automatically implements replicate settings across all linked inverters. Once a system is up and running, the Master Inverter allows system administrators to adjust all settings and consolidate all data to and from one central location, quickly and easily.

### Improved uptime

When it comes to servicing, the Master Inverter again helps reduce maintenance time. New inverters being added to a system automatically take on the correct settings. System health-checks are quick and easy to carry out from one central location. Also, any necessary changes, such as software updates, can be rapidly implemented across the entire PV system, maximising overall system uptime.

### Trouble-shooting

For around-the-clock observation of system performance data, the Master Inverter can be accessed via the inverter's integrated web server from an Internet enabled computer. The Master Inverter can also be set up to send text messages or emails containing key system statistics as well as information on inverters not performing optimally. Equipped with this knowledge, maintenance engineers can arrive on site well prepared, with all necessary spares and tools, and can go directly to the relevant inverters.

### MASTER INVERTER HIGHLIGHTS

- **Control 100 inverters from one place**
- **Receive performance updates by SMS or email**
- **Install and replace inverters rapidly**







	TLX Pro 8k	TLX Pro 10k	TLX Pro 12.5k	TLX Pro 15k
<b>Specification:</b>				
Nominal power DC	8250 W	10300 W	12900 W	15500 W
Max recommended PV power at STC <sup>1)</sup>	9500 Wp	11800 Wp	14700 Wp	17700 Wp
Nominal power AC	8000 W	10000 W	12500 W	15000 W
Max power AC	8000 W	10000 W	12500 W	15000 W
Max efficiency	97.9 %	98 %	98 %	98 %
Euro efficiency	97 %	97 %	97.3 %	97.4 %
Night consumption	< 5 W	< 5 W	< 5 W	< 5 W
<b>Voltages:</b>				
Max voltage DC	1000 V	1000 V	1000 V	1000 V
Nominal voltage DC	700 V	700 V	700 V	700 V
MPP voltage range – nominal power <sup>2)</sup>	345-800 V	430-800 V	358-800 V	430-800 V
AC Voltage range	3x230 V ± 20 %	3x230 V ± 20 %	3x230 V ± 20 %	3x230 V ± 20 %
Grid frequency	50 ± 5 Hz	50 ± 5 Hz	50 ± 5 Hz	50 ± 5 Hz
<b>Currents:</b>				
Max current DC	2 x 12 (24) A	2 x 12 (24) A	3 x 12 (36) A	3 x 12 (36) A
Nominal current AC	3 x 12 A	3 x 15 A	3 x 19 A	3 x 22 A
Max current AC	3 x 13.2 A	3 x 15 A	3 x 19 A	3 x 22 A
Distortion (THD %)	< 4%	< 5%	< 5%	< 5%
<b>Other:</b>				
Dimensions (L,W,H)	700x525x250 mm	700x525x250 mm	700x525x250 mm	700x525x250 mm
Weight	35 kg	35 kg	35 kg	35 kg
Acoustic Noise level	56 dB(A)	56 dB(A)	56 dB(A)	56 dB(A)
Operation temperature range	-25..60°C (>45°C derating)	-25..60°C (>45°C derating)	-25..60°C (>45°C derating)	-25..60°C (>45°C derating)
MPPT efficiency (static)	99.9 %	99.9 %	99.9 %	99.9 %
MPPT efficiency (dynamic)	99.8 %	99.8 %	99.8 %	99.8 %
Overload operation	Change of operating point	Change of operating point	Change of operating point	Change of operating point
Grid surveillance	Three phase monitoring	Three phase monitoring	Three phase monitoring	Three phase monitoring
IP	IP 54	IP 54	IP 54	IP 54
Isolation monitoring	Value country dependent	Value country dependent	Value country dependent	Value country dependent
<b>Standard:</b>				
Master inverter	Yes	Yes	Yes	Yes
Monitoring	Web server	Web server	Web server	Web server
Grid management	PLA	PLA	PLA	PLA
Communication	Ethernet	Ethernet	Ethernet	Ethernet
	RS485	RS485	RS485	RS485
Potential free contact	x 1	x 1	x 1	x 1
Sensor input	x 2 (temperature, irradiation)	x 2 (temperature, irradiation)	x 2 (temperature, irradiation)	x 2 (temperature, irradiation)
Energy meter	S0 input	S0 input	S0 input	S0 input
<b>Options:</b>				
Modem	GSM	GSM	GSM	GSM
Grid Management		Reactive power	Reactive power	Reactive power

<sup>1)</sup> For fixed systems with semi optimal conditions.

<sup>2)</sup> At identical input voltages. At unequal input voltages  $V_{mpp, min}$  lies between 250-430 V depending on total input power.

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